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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/710,261 | 06/29/2004 | Souichi MORIYA | Q82380 | 4260 |
| 23373 | 7590 | 07/19/2005 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | DO, AN H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2853 | |

DATE MAILED: 07/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary

Application No.

10/710,261

Applicant(s)

MORIYA ET AL.

Examiner

An H. Do

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/278,026.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/30/04 & 3/23/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/278,026, filed on October 23, 2002.

Information Disclosure Statement

2. The information disclosure statements(IDS) submitted on 30 June 2004 and 23 March 2005 were filed and are being considered by the examiner.

Specification

3. The disclosure is objected to because of the following informalities:
 - The term "2002-10-23" should be replaced with "October 23, 2002, now abandoned," in the first paragraph of the specification to keep the most up-to-date record.
 - On the claims pages, the brackets [c1]...[c6] should be spelled out as corresponding claim numbers (i.e., claim 1, claim 2...)Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata et al (EP 0 985 535 A2) in view of Ide et al (W099/09647).

Miyata et al discloses all basic features of claimed invention as follows:

A liquid-jet head including a passage-forming substrate (10) in which a pressure generating chamber (12) communicating with a nozzle orifice (15) ejecting a liquid is defined and a piezoelectric element composed of a lower electrode (60), a piezoelectric layer (70) and an upper electrode (80) on one surface of the passage-forming substrate (10) with a vibration plate (50) interposed therebetween, the liquid-jet head comprising:

-A sealing plate (20) joined towards a piezoelectric element side of the passage-forming substrate (10) and having a piezoelectric element holding portion (24), the sealing plate (20) hermetically sealing a space secured in a region facing to the piezoelectric element in such away that it does not hinder a movement thereof (Figure 1 clearly illustrates piece by piece);

wherein at least a part of a peripheral portion of the piezoelectric element holding portion (24) of the sealing plate (20) is joined to the passage-forming substrate (column 13, lines 5-10).

Miyata et al disclose the claimed invention except for reciting the aforementioned joining between the sealing plate and the substrate is by way of the joining layer made of glass.

Ide et al teach the joining between a sealing plate (5) and a substrate (2) is by way of a joining layer (6) made of glass (Abstract).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to join the aforementioned features of Miyata et al by way of a joining layer made of glass as taught by Ide et al for the purpose of providing an airtight vessel so that the piezoelectric elements within can be protected.

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata et al (EP 0 985 535 A2) in view of Ide et al (W099/09647) as applied to claim 1 above, and further in view of Dekker et al (US 6,104,081).

Miyata et al as modified by Ide et al disclose the claimed invention except for reciting the aforementioned phosphorous glass for trapping moisture.

Dekker et al teach phosphorous glass layer (sub-layer 22) is formed for trapping moisture (column 5, lines 3-8).

It would have been further obvious to one having ordinary skill in the art at the time the invention was made to join the aforementioned features of Miyata et al as modified by Ide et al by way of phosphorous glass layer as taught by Dekker et al for the purpose of preventing the moisture.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyata et al (EP 0 985 535 A2) in view of Ide et al (W099/09647) as applied to claim 1 above, and further in view of Blackwell et al (US 6,487,879).

Miyata et al as modified by Ide et al disclose the claimed invention except for reciting a filler material selected from group of titania, zirconia and alumina.

Blackwell et al teach a filler material selected from group of titania, zirconia and alumina is used for providing superior strength (column 1, lines 17-24).

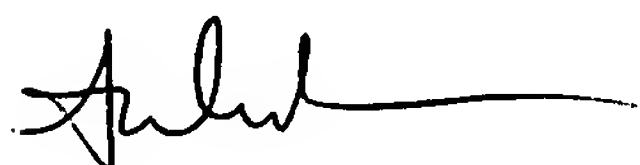
It would have been further obvious to one having ordinary skill in the art at the time the invention was made to join the aforementioned features of Miyata et al as modified by Ide et al by way of a filler material selected from group of titania, zirconia and alumina as taught by Blackwell et al for the purpose of providing superior strength.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached from Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



An H. Do
July 13, 2005